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Some Consequences of the A/A-bar Distinction of Scrambling
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It has been discussed that clause internal scrambling (CIS) involves A or A-bar movement whereas long distance scrambling (LDS) involves A-bar movement (cf. Mahajan (1989), Webelhuth (1989), Saito (1992)). In this reserch, we discussed consequences of the A/A-bar distinction of Japanese scrambling. First, the presence/absence of scope interaction through scrambling can be captured in terms of the A/A-bar distinction. Second, operations of scrambling must observe the economy of derivation. Third, scrambling is not applied to adjuncts.

First, the scope interaction in Japanese shows a piece of evidence for the A/A-bar distinction. It has been considered since Hoji (1985) that if a quantifier Q1 takes scope over another quantifier Q2, Q1 must c-command Q2 or a trace of Q2 at S-structure. However, Arisaka et al. (1992) observe that LDS does not provoke the scope ambiguity, in contrast to CIS. We proposed that the contrast can be captured in terms of the A/A-bar distinction: a quantifer QP1 cannot take scope over a quantifer QP2 if QP1 is in an A-bar position at S-structue. Then the ambiguity brought about by CIS is due to A movement, not to A-bar movement, of the quantifer. This is supported by the following sentnece, in which the scrambled phrase includes the bound pronoun *jibun* 'self'.

(1) [jibun$_1$-o home-ta dareka-ni]$_2$daremo$_1$-ga t_2 at-ta $\qquad$ V>∃, *∃>V
   self-ACC praise-PAST someone-DAT everyone-NOM meet-PAST
   Lit. Someone who praised himself$_1$, everyone$_1$ met.

In order to interpret the bound pronoun in sentence (1), the scrambled phrase is forced to be in an A-bar position, and thus the sentence remains unambiguous.

Secondly, we explored economical aspects of scrambling. One instance of the aspects is that LDS does not involve intermediate traces. We drew pieces of supporting evidence from binding phenomena, weak crossover effects, and the quantifier interaction. Take, for example, the following binding phenomena:

(2) a. *[Tom-to-Nancy$_2$-ni]$_1$ Bill-ga otagai$_2$-no sensei-ga t$_1$ John-o shookaisi-ta to omot-ta
   Tom-and-Nancy-DAT Bill-NOM each other-GEN teacher-NOM John-ACC
   introduce-PAST COMP think-PAST
   Lit. To Tom and Nancy, Bill thought each other's teachers introduced John.

b. [Tom-to-Nancy$_2$-ni]$_1$ Bill-ga t'$_1$ otagai$_2$-no sensei-ga t$_1$ John-o shookaisi-ta to omot-ta

In (2a) LDS does not improve grammaticality. If the scrambled NP leaves an intermediate trace as in (2b), then the NP binds *otagai* and the sentence would be grammatical, contrary to fact. Thus LDS cannot involve intermediate traces.

Another instance of the aspects is about multiple scrambling. Hoji (1985: 352) claims that "a syntactic operation cannot apply iff it does not change the order of the overt lexical string." However there are several pieces of evidence: binding phenomena, weak crossover effects, and scope interaction. They suggest that his claim be insufficient for analyzing scrambling; rather we can conclude that multiple scrambling must not involve intermediate traces. With these two instances, we proposed the Principle of Economical Scrambling (PES): the operation of scrambling must be minimal to derive the surface word order.

Finally, assuming the PES, we proposed that adjuncts are base-generated, even if they are in sentence initial position. This is due to the fact that adjuncts are not selected by any verbs. Under the assumption that traces can be utilized at S-structure to determine the scope of adjuncts (cf. Lasnik and Saito 1992; Culicover 1991), we can firstly account for the facts that in complex sentences, adjuncts show reconstruction effects for bound pronouns as in (3):

(3) a. ?[pro$_1$ totemo atama-ga yokat-ta-node]$_2$ Tom-ga [daremo-ga$_1$ John-o t$_2$ home-ta] to omot-ta

   pro very brain-NOM good-PAST-because Tom-NOM everyone-NOM John-ACC praise-PAST COMP think-PAST

   Lit. Because he$_1$ was very clever, Tom thought that everyone$_1$ praised John.

   b. *[pro$_1$ totemo atama-ga yokat-ta-node] daremo-ga$_1$ John-o home-ta

   pro very brain-NOM good-PAST-because everyone-NOM John-ACC praise-PAST

   Lit. Because he$_1$ was very clever, everyone$_1$ praised John.

Secondly, we can recapture *wh*-island effects on adjuncts.

(4) *sono riyuu-de$_1$ Mary-ga [dare-ga t$_1$ kubi-ni nat-ta ka] siri tagat-te-iru

   that reason-for Mary-NOM who-NOM fired become-PAST Q know want

   Lit. For that reason, Mary wants to know who was fired.

Following that the assumption that the scrambled phrases are undone to its original position at LF (Saito 1989, 1992), we proposed that the base-generated adjunct *sono riyuu-de* does not

move back to the inserted trace, yielding an ECP violation.

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